AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.   (currently amended) A method for reproducing multi-channel stereophonic sound ~~by which~~ comprising:

reproducing sound output through a plurality of additional channels in a multi-channel stereophonic sound system ~~is reproduced~~ by using a signal of a left stereo channel, a signal of a right stereo channel, and a signal of a center channel,

wherein the multi-channel stereophonic sound system is a 5.1-channel stereophonic sound system and the plurality of additional channels use speakers of a TV set or a stereo audio system,

the output of a left additional channel is produced using the signal of the left stereo channel and the signal of the center channel, and excludes using the signal of the right stereo channel and a signal of a right surround channel, and

the output of a right additional channel is produced using the signal of the right stereo channel and the signal of the center channel, and excludes using the signal of the left stereo channel and a signal of a left surround channel.

2.   (canceled).

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3.   (currently amended) A method for producing multi-channel stereophonic sound,

the method comprising:

(a) receiving an encoded audio stream;

(b) decoding the encoded audio stream;

(c) producing multi-channel stereophonic sound from the decoded audio stream; and

(d) producing an output of a right speaker of a TV set and an output of a left speaker of

the TV set using a signal of a left stereo channel, a signal of a right stereo channel, and a signal

of a center channel of the multi-channel stereophonic sound,

wherein the output of the left speaker of the TV set is produced using the signal of the left

stereo channel and the signal of the center channel, and excludes using a signal of the left

surround channel and a signal of a right surround channel; and

the output of the right speaker of the TV set is produced using the signal of the right

stereo channel and the signal of the center channel, and excludes using the signal of the right

surround channel and the signal of a left surround channel.

4.   (original)   The method of claim 3, wherein in step (c), the multi-channel

stereophonic sound is 5.1-channel sound.

5.   (original) The method of claim 3, wherein in step (d):

the output of the left speaker of the TV set is smaller than an output of the left stereo channel and as the left speaker of the TV set is located closer to the left stereo channel, components of the output of the left stereo channel contained in the output of the left speaker of the TV set increase and components of an output of the center channel contained in the output of the left speaker of the TV set decrease; and

the output of the right speaker of the TV set is smaller than an output of the right stereo channel and as the right speaker of the TV set is located closer to the right stereo channel, components of the output of the right stereo channel contained in the output of the right speaker of the TV set increase and components of the output of the center channel contained in the output of the right speaker of the TV set decrease.

6.   (original) The method of claim 3, wherein in step (d):

the output of the left speaker of the TV set is obtained by multiplying the sum of the product of a signal output from the left stereo channel and a first predetermined constant and the product of a signal output from the center channel and a value obtained by subtracting the first predetermined constant from 1, by a second predetermined constant; and

the output of the right speaker of the TV set is obtained by multiplying the sum of the product of a signal output from the right stereo channel and the first predetermined constant and the product of the signal output from the center channel and the value obtained by subtracting the first predetermined constant from 1, by the second predetermined constant.

7.   (original) The method of claim 3, wherein in step (d), the output (Ltv) of the left speaker of the TV set and the output (Rtv) of the right speaker of the TV set are calculated using the equations below:

$$Ltv = 0.7*\{a*L+(1-a)*C\}$$

$$Rtv = 0.7*\{a*R+(1-a)*C\}$$

wherein L, R, and C represent the signal output from the left stereo channel, the signal output from the right stereo channel, and the signal output from the center channel, respectively, and "a" is a constant that is obtained by dividing a distance between the right speaker of the TV set and a speaker of the right stereo channel by the sum of a distance between the right speaker of the TV set and the speaker of the right stereo channel and a distance between the right speaker of the TV set and a speaker of the center channel.

8.   (original) The method of claim 7, wherein the constant "a" is adjusted to a value within the range of 0.1 – 1.0, in increments of 0.1 or 0.2, depending on the positions of the right speaker of the TV set and the speakers of the right stereo channel and the center channel.

9.   (original) The method of claim 3, wherein the encoded audio stream is encoded using one of a Dolby digital sound method, a digital theater system method, and an advanced audio coding method.

10.   (currently amended)   A method for reproducing multi-channel stereophonic sound, the method comprising:

(a) receiving an encoded audio stream;

(b) decoding the encoded audio stream;

(c) reproducing outputs of a center channel, a left surround channel, a right surround channel, and a woofer channel from the decoded audio stream;

(d) reproducing outputs of a left stereo channel and a right stereo channel from the decoded audio stream; and

(e) reproducing outputs of a left speaker of a TV set and a right speaker of the TV set using the outputs (signals) of the left stereo channel, the right stereo channel, and the center channel,

wherein the output of the left speaker of the TV set is produced using the output (signal) of the left stereo channel and the output (signal) of the center channel, and excludes using the output (signal) of the left surround channel and the output (signal) of the right surround channel; and

the output of the right speaker of the TV set is produced using the output (signal) of the right stereo channel and the output (signal) of the center channel, and excludes using the output (signal) of the right surround channel and the output (signal) of the left surround channel.

11.   (original) The method of claim 10, wherein in step (d):

the output of the left stereo channel is reproduced using the outputs (signals) of the left stereo channel and the left surround channel and output (signal) components of the left stereo channel are greater than output (signal) components of the left surround channel; and

the output of the right stereo channel is reproduced using the outputs (signals) of the right stereo channel and the right surround channel and output (signal) components of the right stereo channel are greater than output (signal) components of the right surround channel.

12.   (currently amended) The method of claim 10, wherein in step (d), the output L̶ L' of the left stereo channel and the output R̶ R' of the right stereo channel are calculated using the equations below:

$$L' = 0.7*L + 0.3*Ls \quad \cancel{L = 0.7*L + 0.3*Ls}$$

$$R' = 0.7*R + 0.3*Rs \quad \cancel{R = 0.7*R + 0.3*Rs}$$

wherein, Ls and Rs represent the signals output from the left surround channel and the right surround channel, respectively, and wherein L and R represent the output (signal) from the left stereo channel and the output (signal) from the right stereo channel, respectively.

13.   (original) The method of claim 10, wherein in step (e):

the output of the left speaker of the TV set is smaller than an output of the left stereo channel and as the left speaker of the TV set is located closer to the left stereo channel, components of the output of the left stereo channel contained in the output of the left speaker of

the TV set increase and components of an output of the center channel contained in the output of the left speaker of the TV set decrease; and

the output of the right speaker of the TV set is smaller than an output of the right stereo channel and as the right speaker of the TV set is located closer to the right stereo channel, components of the output of the right stereo channel contained in the output of the right speaker of the TV set increase and components of the output of the center channel contained in the output of the right speaker of the TV set decrease.

14.   (original) The method of claim 10, wherein in step (e), the output (Ltv) of the left speaker of the TV set and the output (Rtv) of the right speaker of the TV set are calculated using the equations below:

$$Ltv = 0.7 * \{(0.3 + a) * L + (1 - a) * C\}$$

$$Rtv = 0.7 * \{(0.3 + a) * R + (1 - a) * C\}$$

wherein L, R, and C represent the signal output from the left stereo channel, the signal output from the right stereo channel, and the signal output from the center channel, respectively, and "a" is a constant that is obtained by dividing a distance between the right speaker of the TV set and a speaker of the right stereo channel by the sum of a distance between the right speaker of the TV set and the speaker of the right stereo channel and a distance between the right speaker of the TV set and a speaker of the center channel.

15.   (currently amended)   An apparatus for reproducing multi-channel stereophonic sound, the apparatus comprising:

a compressed audio data inputting unit that receives and stores compressed audio data;

a decoder that decodes the compressed audio data into PCM audio data based on the encoding format of the compressed audio data;

a multi-channel sound producer that produces ~~sound~~ signals (sound) output to a center channel, a left stereo channel, a right stereo channel, a left surround channel, a right surround channel, and a low frequency enhancement channel using the decoded PCM audio data;

a TV speaker output producer that produces an output of a left speaker of a TV set and an output of a right speaker of the TV set using the signal (sound) of the left stereo channel, the signal (sound) of the right stereo channel and the signal (sound) of the center channel produced by the multi-channel sound producer; and

a multi-channel TV speaker output producer that produces the signals of the left stereo channel and the right stereo channel based on the positions of speakers of the left and right stereo channels,

wherein the output of the left speaker of the TV set is produced using the signal (sound) of the left stereo channel and the signal (sound) of the center channel, and excludes using the signal (sound) of the left surround channel and the signal (sound) of the right surround channel; and

the output of the right speaker of the TV set is produced using the signal (sound) of the

right stereo channel and the signal (sound) of the center channel, and excludes using the signal

(sound) of the right surround channel and the signal (sound) of the left surround channel.

16.   (currently amended) The apparatus of claim 15, wherein the TV speaker output

producer:

increases output (sound) components of the left stereo channel contained in the output of

the left speaker of the TV set and decreases output (sound) components of the center channel

contained in the output of the left speaker of the TV set, each directly corresponding to a

decrease in a distance between the left speaker of the TV set and the left stereo channel, as and

the output of the left speaker of the TV set is smaller than the output of the left stereo channel

and the left speaker of the TV set is located closer to the left stereo channel; and

increases output (sound) components of the right stereo channel contained in the output

of the right speaker of the TV set and decreases output (sound) components of the center channel

contained in the output of the left speaker of the TV set, each directly corresponding to a

decrease in a distance between the right speaker of the TV set and right left stereo channel, as

and the output of the right speaker of the TV set is smaller than the output (sound) of the right

stereo channel and the right speaker of the TV set is located closer to the right stereo channel.

17.   (original) The apparatus of claim 15, wherein the TV speaker output producer produces the output (Ltv) of the left speaker of the TV set using one of equations 1 and 2 and the output (Rtv) of the right speaker of the TV set using one of equations 3 and 4:

$$Ltv = 0.7 * \{a * L + (1 - a) * C\} \qquad \ldots (1)$$

$$Ltv = 0.7 * \{(0.3 + a) * L + (1 - a) * C\} \qquad \ldots (2)$$

$$Rtv = 0.7 * \{a * R + (1 - a) * C\} \qquad \ldots (3)$$

$$Rtv = 0.7 * \{(0.3 + a) * R + (1 - a) * C\} \qquad \ldots (4)$$

wherein, L, R, and C represent the signal output from the left stereo channel, the signal output from the right stereo channel, and the signal output from the center channel, respectively, and "a" is a constant that is obtained by dividing a distance between the right speaker of the TV set and the right stereo channel by the sum of a distance between the right speaker of the TV set and the right stereo channel and a distance between the right speaker of the TV set and the center channel.

18.   (original) The apparatus of claim 15, wherein the compressed audio data is encoded using one of a Dolby digital sound method, a digital theatre system method, and an advanced audio coding method.

19.   (original) A computer-readable recording medium on which a program for executing the method described in claim 1 in a computer is recorded.